

**NYCDEP – GOWANUS FACILITIES UPGRADE  
OXYGEN TRANSFER SYSTEM (OTS) REMOVAL PLAN**

Upon written direction from the City, the Contractor shall remove all components of the OTS system (i.e., piping, anchors, marker buoys, etc.) from the Canal. The removal of all the OTS components within the Canal shall comply with all OSHA, local, state and federal codes, regulations and guidelines. The Contractor shall prepare and submit a detailed work plan to the City for approval demonstrating compliance with all of the requirements of this removal plan as well as specific health and safety requirements. The Contractor's work plan must also demonstrate compliance with the document entitled, "Gowanus Canal Interim Oxygen Transfer System, Sampling Plan Incorporating Quality Assurance Project Plan for System Dismantlement Waste Characterization."

In order to remove the OTS system components, the Contractor must perform the following:

1. Mobilize a barge.
2. Ensure proper PPE is utilized by workers performing removal, based on codes/guidelines and recommendations from EH&S consultants (Tyvek suits, face shields, etc).
3. Install a floating silt/turbidity curtain along proposed area of work. The silt/turbidity curtain shall be a commercially available, preassembled system, including a geotextile curtain to allow for passage of water while retaining silt and sediment, a flotation system, bottom weights, and anchoring/securing mechanisms meeting the requirements of a Type III curtain. The curtain shall be from the surface of the Canal to the bottom of the Canal.
4. Hoist and suspend each OTS system component out of the water.
5. Once out of the water, the Contractor shall suspend each system component above the water surface, behind the turbidity curtain, and clean the sediment and debris off of each component with a high pressure spray. Washings, runoff water and sediment must return to the Canal and be confined inside the turbidity curtain. The Contractor must not release any other debris or sediment to the Canal.
6. The Contractor shall document the removal and cleaning activities with photographs.
7. The removal and cleaning activities shall be performed only during dry weather conditions while the Flushing Tunnel Pumping System is not in operation.

8. After the system components have been cleaned of sediment and debris, the Contractor shall place the system components in the designated waste staging area pending waste characterization, prior to proper off-site management.
9. Within 5 days of placing a system component in the designated waste staging area, the Contractor shall sample the system component in accordance with the document entitled, "Gowanus Canal Interim Oxygen Transfer System, Sampling Plan Incorporating Quality Assurance Project Plan for System Dismantlement Waste Characterization," herein referred to as the "QAPP." Any system component exceeding the Standards, Criteria and Guidance (SCGs) provided in the QAPP shall be considered hazardous waste.
10. For system components constructed exclusively of metal (e.g., chain, Crosby screw pins, wire rope, etc.), the Contractor shall recycle these components as scrap metal. As a result, since these metal components have been cleaned with high pressure water spray, these components do not have to be sampled for waste characterization purposes. However, the facility selected to manage the metal components must actually recycle or reclaim the metal. The Contractor shall submit documentation for the planned facility including any permits, registrations, identification numbers, process approvals, process description, etc. to the City for approval. The Contractor must receive the City's approval of the facility prior to sending any waste to that facility. In addition, the Contractor must prepare bills of lading for each shipment of metal components to the facility that must include a description of the waste shipped, its weight, the date, the name of the receiving facility and signature by the receiving facility. Also, the Contractor shall receive a Certificate of Recycling for the selected facility for each component sent to the facility indicating a description of the component at its weight. The Contractor must provide copies of these bills of lading and Certificates of Recycling in its project completion report.
11. The Contractor shall not store any system component or other waste within the designated waste staging area for greater than 89 days unless the system component or waste has been determined to not be hazardous waste based on the waste determination performed in accordance with the QAPP. The City shall approve all waste determinations in accordance with the requirements of these procedures.
12. The curtain will remain in place until all suspended silt and debris have returned to the Canal bottom and the area inside the curtain has been proven clean. In order to demonstrate that the area inside the curtain is clean, the Contractor shall perform the following:
  - a. The Contractor shall obtain turbidity measurements from the Canal using a portable turbidity meter. The meter must meet the requirements of USEPA Method 180.1 and International Organization for Standardization (ISO) Method 7027 and be capable of measuring for turbidity in the range of 50 to 1,000 Nephelometric Turbidity Units

(NTUs). The Contractor shall properly operate and calibrate the meter in accordance with the manufacturer's recommendations. At a minimum, the meter shall be field calibrated twice per day during use, once at the start of each day and once at each day's midpoint. To obtain a measurement, the instrument's probe may be lowered to the desired depth or a sample may be collected from the desired depth and placed in the instrument.

- b. Prior to installation of the silt/turbidity curtain, the Contractor shall measure the turbidity within the Canal every 40-linear feet along the planned route of the curtain. At each location, the Contractor shall obtain two turbidity measurements: one approximately 6 inches below the Canal surface and the other approximately 18 inches above the Canal bottom.
- c. At each measurement location, the Contractor shall record in a bound field log book the date, air temperature, weather conditions, location of measurement along the Canal (grid or other measurement reference shall be established and described in the field log book), depth of measurement, time of measurement, name of individual(s) and affiliation(s) taking the measurement, and measurement result. All information recorded in the bound field log book must be recorded legibly in English.
- d. Following removal and rinsing of the system components from the Canal but prior to removal of the silt/turbidity curtain, the Contractor shall measure the turbidity within the Canal every 40-linear feet along the route of the curtain (same measurement locations as used prior to starting the removal work). At each location, the Contractor shall obtain turbidity measurements both 2 feet inside the curtain and 5 feet outside the curtain at approximately 6 inches below the Canal surface and approximately 18 inches above the Canal bottom. At each measurement location, the Contractor shall record the information as described above.
- e. The area inside the curtain shall be considered clean upon the Contractor's demonstration to the City that the measurements obtained following the removal and rinsing activities are equivalent to (within 10%) or less than the measurements obtained prior to the installation of the silt/turbidity curtain. In the event that the measurements obtained following the removal and rinsing activities outside the curtain are higher than those obtained inside the curtain, the area inside the curtain shall be considered clean. The Contractor shall provide a copy of the bound field log book to the City. The Contractor must obtain the City's written approval prior to removal of the silt/turbidity curtain. Prior to removal of the silt/turbidity curtain, the Contractor shall remove any floatables present on the Canal surface inside the silt/turbidity curtain for proper off-site transportation and disposal. Following removal, the silt/turbidity curtain must be properly sampled and characterized in accordance with the QAPP, as described above.

13. If determined to be nonhazardous, the system components will be disposed of as nonhazardous waste or scrap metal.

14. The Contractor shall provide a current copy of the hazardous or nonhazardous waste management permit to the City for any facility the Contractor plans to utilize for the management of the wastes generated during these activities. The Contractor shall receive the City's written approval of any facility to be utilized to manage hazardous or nonhazardous waste prior to the waste's removal from the designated waste staging area.
15. Within 35 days from the date of the sampling, the Contractor shall provide a waste determination to the City along with the analytical results of all waste characterization samples obtained in accordance with the QAPP for the City's concurrence with the Contractor's determination. The waste determination submitted by the Contractor shall clearly identify the waste sampled, the location where each sample was collected, each sample's results, whether the waste is considered hazardous or nonhazardous, and the proposed off-site management facility where the waste will be transported. The Contractor shall not remove any item from the designated waste staging area without the City's written approval of the Contractor's waste determination.
16. The Contractor shall have the waste characterization sample analytical results validated by a third-party validator meeting the requirements of the QAPP. The third-party validator shall perform the data validation in accordance with the requirements of the QAPP. The Contractor shall provide the NYSDEC ASP Category B Deliverables received from the laboratory for the waste characterization samples to the third-party validator for sample validation purposes. The validator shall validate 20% of the samples utilizing the procedures specified in the QAPP. Following the sample validation, the third-party validator shall prepare a Data Validation/Usability Summary Report (DUSR) for the sample data in accordance with the requirements of the QAPP and provide a copy of the DUSR to the Contractor.
17. Following completion of the waste removal and disposal activities, the Contractor shall provide a completion report to the City. The completion report shall include a description of the activities performed in accordance with the requirements herein as well as a copy of the following: sample location plan showing each waste determination sample location; each waste determination and City's approval; analytical results for each sample (laboratory NYSDEC Category B Deliverables); chain of custody forms for each sample; the laboratory's certifications; waste management documentation for each waste (manifests, bills of lading, documentation of recycling, etc.) indicating receipt at the receiving facilities; Certificates of Recycling; a Data Validation / Usability Summary Report (DUSR) prepared in accordance with the QAPP requirements; photographs as described above; and all documentation specified in the QAPP. The City shall submit a copy of the completion report to the USEPA.
18. The Flushing Tunnel Pumping System shall not be operated during the removal and cleaning activities related to the OTS equipment in the Canal. Once the area inside the silt/turbidity curtain has been determined to be clean in accordance with the requirements described above, the Flushing Tunnel Pumping System can be placed into operation.